AMENDMENTS TO THE CLAIMS

Pursuant to 37 C.F.R. § 1.121 the following listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Previously Presented) A method of calculating echo-canceling (EC) coefficients to be used by an echo cancellation filter in a communication modem, the communication modem having a Fast Fourier Transform (FFT) serial to parallel interface, the method comprising the steps of:

transmitting a first signal including a wide-band cyclic sequence;

generating an echo signal based on said first signal and a plurality of EC coefficients;

receiving a second signal including a wide-band cyclic sequence;

subtracting the echo-canceled signal from said second signal to produce an echo-cancelled signal;

transforming the echo-cancelled signal via said FFT serial to parallel interface to produce a transformed echo-cancelled signal;

calculating said plurality of EC coefficients based on said transformed echo-cancelled signal; and

providing at least one control signal to control the timing of said transmitting step so that said calculating step is performed for predesignated first signals.

2. (Currently amended) A method according to claim 1, wherein said communication modem comprises an Inverse Fast Fourier Transform (IFFT) parallel to serial interface and wherein the step of transmitting said first signal comprises the step of transmitting said first signal via said IFFT parallel to serial interface[;].

3. (Original) A method according to claim 1, wherein said communication modem comprises an look-up table having stored therein at least one cycle of said first signal and wherein the step of transmitting said first signal comprises the step of transmitting a signal based on said look-up table.

4. (Original) A method according to claim 1 wherein said echo cancellation filter comprises a Finite Impulse Response (FIR) filter.

5. (Original) A method according to claim 1 wherein said wide-band cyclic sequence comprises an ADSL startup sequence.

6. (Original) A method according to claim 1 wherein calculating said EC coefficients comprises iteratively estimating said EC coefficients.

7. (Original) A method according to claim 1 wherein calculating said EC coefficients comprises calculating said EC coefficients directly from correlation sequences between said first signal and said echo signal.

8. (Original) A method according to claim 4 wherein the step of calculating said EC coefficients comprises the step of selecting L cross-correlation coefficients, $X(k)$, $k= 0....(L-$

1), as filter coefficients *C(0) to C(L-1)*, respectively, wherein *L* is the FIR filter length and *X(k)* is a cross-correlation coefficient at time-distance, *k*.

9. (Original) A method according to claim 8 wherein the step of calculating said EC coefficients further comprises the step multiplying each selected filter coefficient *C(k)* by a window coefficient, *w(k)*.

10. (Currently Amended) A method of calculating echo-canceling (EC) coefficients to be used by an echo cancellation filter in a communication modem, the communication modem having a Fast Fourier Transform (FFT) serial to parallel interface and an Inverse Fast Fourier Transform (IFFT) parallel to serial interface, the method comprising the steps of:

transmitting, via said IFFT parallel to serial interface, a first signal including a wide-band cyclic sequence;

generating an echo signal based on said first signal and a plurality of EC coefficients;

receiving a second signal including a wide-band cyclic sequence;

subtracting the echo-canceled signal from said second signal to produce an echo-cancelled signal;

transforming the echo-cancelled signal via said FFT serial to parallel interface to produce a transformed echo-cancelled signal;

initializing said FFT and IFFT interfaces such that no cyclic prefix is added to or removed from the first and second signals;

commanding a constellation encoder of said modem to transmit a reverb signal without a cyclic prefix;

temporarily disabling the step of generating said echo signal;

integrating said second signal over a predetermined number, *L*, of symbols to obtain an echo response measurement, *Echo(k)*;

reenabling the step of generating said echo signal with the EC coefficients set to values which yield a unity gain filter;

integrating the transformed echo-canceled signal over *L* symbols to produce an Echo+EC response measurement;

calculating an EC response, *EC(k)*, by determining the difference between the Echo+EC response measurement and the echo response measurement *(Echo(k))*[.]; and

based on the Echo+EC response and the echo response *(Echo(k))* measurements, calculating said EC coefficients.

11. (Previously Presented) A method according to claim 2 and further comprising:

initializing said FFT and IFFT interfaces such that no cyclic prefix is added to or removed from the first and second signals;

commanding a constellation encoder of said modem to transmit a reverb signal without a cyclic prefix;

temporarily disabling the step of generating said echo signal;

integrating said second signal over a predetermined number, *L*, of symbols to obtain an echo response measurement, *Echo(k)*;

reenabling the step of generating said echo signal with the EC coefficients set to values which yield a unity gain filter;

integrating the transformed echo-canceled signal over *L* symbols to produce an

Echo+EC response measurement;

calculating an EC response, *EC(k)*, by determining the difference between the Echo+EC response measurement and the echo response measurement *(Echo(k))*; and

based on the Echo+EC response and the echo response *(Echo(k))* measurements, calculating said EC coefficients.

12. (New) A method of calculating echo-canceling (EC) coefficients to be used by an echo cancellation filter in a communication modem, the communication modem having a Fast Fourier Transform (FFT) serial to parallel interface and an Inverse Fast Fourier Transform (IFFT) parallel to serial interface, the method comprising the steps of:

transmitting a first signal including a wide-band cyclic sequence, wherein the step of transmitting the first signal further comprises the step of transmitting said first signal via said IFFT parallel to serial interface;

generating an echo signal based on said first signal and a plurality of EC coefficients;

receiving a second signal including a wide-band cyclic sequence;

initializing said FFT and IFFT interfaces such that no cyclic prefix is added to or removed from the first and second signals;

commanding a constellation encoder of said modem to transmit a reverb signal without a cyclic prefix;

temporarily disabling the step of generating said echo signal;

integrating said second signal over a predetermined number, *L*, of symbols to obtain an echo response measurement, *Echo(k)*;

reenabling the step of generating said echo signal with the EC coefficients set to values which yield a unity gain filter;

subtracting the echo-canceled signal from said second signal to produce an echo-cancelled signal;

transforming the echo-cancelled signal via said FFT serial to parallel interface to produce a transformed echo-cancelled signal;

integrating the transformed echo-canceled signal over L symbols to produce an Echo+EC response measurement;

calculating an EC response, *EC(k)*, by determining the difference between the Echo+EC response measurement and the echo response measurement *(Echo(k))*; and

based on the Echo+EC response and the echo response *(Echo(k))* measurements, calculating said EC coefficients; and

providing at least one control signal to control the timing of said transmitting step so that said calculating step is performed for predesignated first signals.